

CHARLES K. EBINGER

Key Qualifications:

Charles Ebinger, a Senior Fellow and Director of Brookings' Energy Security Initiative, has 30 years experience addressing the security, political, economic, environmental and foreign policy interrelationships surrounding domestic and international energy issues for public and private sector clients. Dr. Ebinger's involvement in energy security commenced in 1975 when, as a Foreign Affairs Officer in the Federal Energy Administration, he helped to establish the International Energy Agency and its oil-sharing mechanism and drafted two National Security Defense Memoranda on the Geopolitics of the Arctic (Svalbard) and the Antarctic. As the Brazil desk officer at the Agency, he followed the crisis arising from Rio's efforts to acquire uranium enrichment and reprocessing facilities. On his own initiative, he produced the first USG report on the Emerging Geopolitics of Chinese Energy, an analysis which won him a Certificate of Superior Service.

From 1976 to 1979, Dr. Ebinger served as Vice President of Conant and Associates, an international oil, gas and electricity political risk consulting company. There, he advised leading European and Japanese energy companies - such as Shell, BP, Total, ENI, VEBA, Statoil, Total, Arabian Oil, Chubu Electric, Kansai Electric, Fuji Oil, Osaka Gas, the Kuwait Petroleum Company and ADNOC - on a host of commercial and strategic issues relating to access to oil, gas and uranium. While at Conant and Associates, he was commissioned by the Georgetown University Center for Strategic and International Studies to write a SAGE Washington Paper on the Geopolitics of Nuclear Energy which took him around the globe to uranium producing and consuming states. He was a founding member of the *Geopolitics of Energy*, a monthly newsletter highly regarded by the highest levels of the international, oil, gas and nuclear industries. At Conant and Associates, Dr. Ebinger was retained by the Asia Society in New York to write a book on how Pakistan had been affected by the first two oil price shocks. The ensuing volume, *Energy Policy Planning in a Strategic Vortex*, was reviewed by a panel of experts prior to its publication by Indiana University Press in 1981 and has led to Dr. Ebinger's serving as a senior energy advisor to every government in Pakistan since that time.

The nuclear paper's success led CSIS to hire Dr. Ebinger in 1979 as the founding Director of its new Energy and Strategic Resources Program. During his eight year tenure, Dr. Ebinger led a team of experts from the academic, public and private sectors in a major public policy report, *The Critical Link: Energy and National Security in the 1980s*, which examined the energy threats posed to the OECD nations in the decade ahead. The book was highlighted in *Forbes* and was the subject of hearings before the International Energy Agency, the European Union, NATO, and the French, Belgian and British governments. A second report, *Energy Access to 2000*, was undertaken in collaboration with Royal Institute of International Affairs (Chatham House) and the Japan Institute of International Economics. Dr. Ebinger also played a leading role in the Soviet gas pipeline dispute with Europe in the 1980s by serving as a voice of moderation in the controversy surrounding the issue. Moreover, he was a contributor and co-editor of a volume on Nordic Energy Security and conducted studies on the following topics: the European gas market for Sonatrach, the Algerian National Oil Company; the European gas markets' need for LNG for the American Gas Association; an analysis of comparative end user prices in Europe for imported coal from Botswana, LNG, pipeline gas and nuclear power for EDF. At CSIS, Dr. Ebinger led the first two public policy reports on the national security and environmental implications for ethanol for the Renewable

Fuels Association and CNG for the American Gas Association. In addition, he led two major investigations on the national security implications of rising import dependency for petroleum products which were the subject of hearings before the Senate Armed Services Committee and the International Trade Commission.

In 1987, Dr. Ebinger joined the Washington office of Putnam Hayes and Bartlett, a leading financial and economic advisory firm specializing in the restructuring of public and private companies in the electricity and natural gas industries. While at PHB, Dr. Ebinger advised clients on the strategic issues arising from rulemaking by FERC and other regulatory authorities under the PURPA and PUCHA legislation. In addition, he led PHB's efforts to develop clients affected by the restructuring of the United Kingdom's electricity and natural gas industries.

Since 1988, Dr. Ebinger has served as an officer in three major international consulting companies. From 1988 until 1999, he was Executive Vice President, Energy Group Director and member of the Board of Directors at the International Resources Group, a global consulting company advising governments on energy, environmental and natural resource issues. There, he helped to lead the company from near bankruptcy to one with annual revenues of \$32 million. He was employed as Senior Vice President for Global Privatization/Regulation/Restructuring at Nexant (Bechtel Consulting) from 2000 until 2004, after serving as Group Director for International Energy at Stone and Webster Management Consultants from 1999 until 2000. In December 2004, Dr. Ebinger returned to IRG as Senior Energy Advisor. He specializes in energy policy formulation; energy pricing reform; demand side management; the restructuring/privatization of formerly state-owned electricity, natural gas and oil companies; the institutional strengthening of government agencies in the energy sector; the creation of regulatory regimes and market forecasting of the oil, natural gas and uranium markets.

Dr. Ebinger has conducted projects for all of the major development banks and the United States Agency for International Development in Afghanistan, Pakistan, India, Egypt, Jordan, the West Bank, Liberia, Romania, Bulgaria, Armenia, Azerbaijan, Nigeria, the Gambia, Iraq, China, Mongolia, Indonesia, Venezuela, Hungary, Poland, Nepal and Saudi Arabia. Most recently during 2007 and 2008 while at IRG, he directed a project examining how to reduce the rising dependency of South East Europe, Turkey and the Caucasus on Russian energy supplies; advised the Office of the President of Liberia on a national energy policy and the creation of an independent regulatory regime; established a domestic energy planning model for Saudi Arabia for ARAMCO and advised the Government of Afghanistan on energy trade with its neighbors in Central Asia.

From 1975 until 2004, Dr. Ebinger taught as an adjunct faculty member in the undergraduate and graduate programs at the Georgetown University School of Foreign Service, where he offered a variety of courses on energy and the global environment. He now teaches at Johns Hopkins' School of Advanced International Studies and again at Georgetown where his courses address global electricity developments and their relationship to climate change as well as courses on international energy developments. Dr. Ebinger is a frequent speaker at industry trade association meetings and has appeared as a commentator on energy issues on McNeil Lehrer, Larry King, Charlie Rose, CNBC, BBC, CNN, and Nightly Business Report. He is the author, and editor of books and articles on US and international energy security; Third World debt and its linkage to the price of oil; South Asian, African and Middle Eastern economic and political issues; nuclear proliferation; and Japanese and Nordic energy security. Dr. Ebinger has testified before state and federal regulatory agencies and the US

Congress on energy security issues and has advised the US intelligence community on Pakistan and Iraq.

Dr. Ebinger has served as a member of the Board of Directors of two energy companies, North Coast Energy and Kokomo Gas Company. His other Board memberships include: Americans for Energy Independence; energy consulting companies; the Chemical and Biological Arms Control Institute as Chairman; and the Washington Chapter of the International Association of Energy Economists as director where he was recently also elected Vice President. Since January 2007, he has been Vice Chairman of the Dubai-based Innovative Energy Group, a company involved in the development of commercial biomass and wind projects. He has been an advisor on two Presidential commissions on US national energy security.

Education:

PhD	Fletcher School of International Law and Diplomacy, Tufts University, 1981
MALD, MA	Fletcher School of International Law and Diplomacy, Tufts University, 1972 and 1973; Awarded Stewart Prize for highest academic honors
BA	Williams College, Phi Beta Kappa, Cum Laude, 1970

Summary Experience Record:

2008-Present	Senior Fellow and Director , Energy Strategic Initiative, Brookings
2004- 2008	Senior Energy Advisor , International Resources Group (IRG), Washington, DC
2000-2004	Senior Vice President for Global Privatization/Regulation/Restructuring (2004), Nexant (Bechtel Consulting), Washington, D.C. Senior Vice President for Middle East, Central Asia, and Africa (2001-2004), Nexant (Bechtel Consulting), Washington, D.C. Vice President and Director of International Utility Services (2000-2001), Nexant (Bechtel Consulting), Washington, D.C.
1999-2000	Director of International Energy Practice , Stone & Webster Management Consultants, Washington, D.C.
1988-1999	Executive Vice President , International Resources Group (IRG), Washington, D.C.
1987-1988	Senior Consultant , Putnam Hayes & Bartlett, Washington, D.C.
1979-1987	Director , Energy and Strategic Resources Program, Georgetown University Center for Strategic and International Studies (CSIS.), Washington, D.C.
1976-1979	Vice President of Strategic Planning , Economic Forecasting and Political Risk Assessment, Conant and Associates, Ltd., Washington, D.C.
1975-1976	Foreign Affairs Officer , Office of International Energy Affairs, Federal Energy Administration. Responsible for Caribbean Refineries, Washington, D.C.
1979-2011	Adjunct Professor , School of Foreign Service, Georgetown University, Washington, D.C.
2007-2011	Adjunct Professor , Nitze School of Advanced International Studies, Johns

Hopkins University, Washington, D.C.

Detailed Professional Experience:

Senior Energy Advisor, International Resources Group (IRG), Washington, DC (2004-2008)

- **Eastern Europe: Director of USAID project (2007-2009)** looking at energy alternatives for the nations of South East Europe, Turkey and the Caucasus to reduce their growing dependence on Russia;
- **Saudi Arabia:** Team member designing a domestic energy planning model of the Kingdom for Aramco-2007-2008.
- Retained by World Bank in December 2007 to review all WB energy lending after 2002 to determine whether climate change concerns were adequately addressed during project design and implementation.
- **Liberia:** Currently member of a two person team preparing a document for the office of the President entitled, *A National Energy Policy for Liberia: An Agenda for Action*.
- **Afghanistan:** Conducted an Institutional Needs and Capacity Building Assessment for five Ministries responsible for the energy sector
- **Afghanistan:** Currently part of a negotiating and advisory team working with the GOA in formalizing Power Purchase Agreements with Uzbekistan, Turkmenistan and Tajikistan.
- **Liberia: Team Leader of a White Paper for the Government of Liberia** highlighting all aspects of Liberia's energy policy. The paper was presented at a World Bank hosted donors conference in January 2007 as reflecting the GOL's new energy policy
- **Nepal: Team Leader of a multiyear project advising HMGN on establishing a regulatory commission for the power sector**, drafting a new electricity law regarding hydroelectric power development and the introduction of private investment for exporting power, and institutional reorganization of the Department of Electricity Development in the Ministry of Water Resources.
- **Hungary: Advisor to the East European Regulators Association (ERRA) in Budapest** on ways to expand its regulatory training program to put itself on a sustainable financing basis following the withdrawal of donor funding.
- **West Bank/Gaza: Team Leader on a World Bank project advising the Palestine Energy Authority** on establishing a regulatory regime for the power sector, reforming electricity pricing and expanding electricity service in the West Bank and Gaza. Involved in drafting a new Electricity Law; a new Ordinance promulgating the Regulatory Authority; the drafting of new generation, transmission and distribution licenses; and a charter for the new Authority.
- **Egypt: Regulatory Advisor to the Chairman of the Egyptian Electric Utility and Consumer Protection Regulatory Agency** designing a new market design, an Implementation Plan to inaugurate it. Also conducted an affordability benchmarking study of the price of electricity to Egyptian consumers against those prevailing in five other countries.

Senior Vice President, Nexant "Bechtel" Consulting (2000-2004)

- **Iraq: Team Leader and Energy Sector Advisor, Coalition Provisional Authority (with the National Security Council and DOD), December 2002-May 2003.** Led a Team (December to January) advising on various proposals to restructure the Iraqi upstream petroleum sector. This analysis involved proposals for restructuring the Iraq Petroleum Company as well as the Ministry. The report was so well received that the Team was asked to conduct a similar report (January-May) on the downstream sector. Key issues addressed in the reports were institutional changes needed to turn Iraq into a world class producing country, an assessment of capital requirements to rebuild and expand the industry, an assessment of the state of the refinery industry and the requirements to rebuild and expand it, the structure of product pricing, an analysis of the wholesale and retail product markets and the human resource requirements needed to revitalize the industry.
- **Saudi Arabia: Institutional Development Specialist, Saudi Electricity Regulatory Authority.** Advised the Saudi Electricity Regulatory Authority on institutional, legal, financial and administrative reforms needed to attract over \$120 billion from the private sector into the economy over the next 12-15 years. Coordinated with the Ministry of Finance, Ministry of Water and Electricity, SAIGA, the Saudi Electric Company, the Saline Water Conversion Company, the royal court, the Shoura Council, and numerous domestic, regional and international investors as well as regional, local, and international banks.
- **Azerbaijan: WB Team Leader, Ministry of Economic Development.** Advised the Ministry of Economic Development on creating a multi sector Regulatory Commission for electricity, natural gas and water. The project involved a review of all laws affecting these sectors; institutional/organizational design of the Commission; consolidation of existing oversight authority from among several institutions into the new Commission; staffing recommendations; design of tariff principles and development of a tariff structure eliminating subsidies and cross subsidies; and development of a human resources training and development plan.
- **Armenia: WB Team Leader, Commission on Expanding the Armenian Public Utilities Commission.** Served as the team leader and personal advisor to the Chairman of the Commission on Expanding the Armenian Public Utilities Commission from its current regulatory responsibilities for electricity and natural gas to include water, sewerage and telecommunications. The project involved requisite institutional, organizational and staffing changes in the Commission, the drafting of new enabling legislation for the Commission as well as new sector laws, detailed training in tariff formulation and design and an examination of financing options for the Commission to put it on a self-sustaining basis..
- **Bulgaria: Institutional Restructuring Expert, Sofia District Heating Company.** Part of a team advising the Sofia District Heating Company on restructuring its finances and institutional and legal composition prior to privatization.
- **Jordan: Regulatory and Economic Advisor, Aqaba Special Economic Zone.** Advised the Government of Jordan and the Commissioners of the Aqaba Special Economic Zone (ASEZ) on rationalizing the regulatory structure in the ASEZ with existing national regulatory institutions in the transport, power, port, water and telecommunications sectors. In addition, advised ASEZA on the establishment of a

municipal gas distribution company for the zone and the creation of a regulatory regime for the gas sector. In this capacity, coordinated with a number of cabinet officials and the Privatization Office of the Prime Minister as well as the ASEZA Commissioners.

- **India: ADB Team Leader, Power Sector Development Program, Kerala, India.** Led a sixteen person team advising the State Government of Kerala and the Kerala State Electricity Board on the economic, financial, technical and regulatory issues arising from the power sector reform program. Helped to establish a new Regulatory Commission: make recommendations on its staffing, design, internal rules and procedures. Advised on institutional/organizational restructuring of KSEB.
- **Nigeria: Power, Oil, and Gas Sector Reform Specialist.** Advised the Nigerian Electric Power Authority, the Nigerian National Petroleum Corporation and the Petroleum Pricing Regulatory Commission on rationalizing oil and gas pipeline tariffs, and creating a regulatory institution for the oil and natural gas sector. Advised NEPA on institutional and organizational reform.
- **Romania: WB Regulatory Advisor, Gas Regulatory Reform.** Assisted the Romanian Government on establishing a regulatory regime for the gas sector.
- **Egypt: Legal and Regulatory Advisor, Power Sector Reform.** Advised the Egyptian Electric Holding Company on the legal/regulatory issues involved in establishing a power pool and creating a regulatory regime for the power and natural gas sectors.

Director of International Energy Practice, Stone & Webster Management Consultants, Washington, DC (1999-2000)

- **The Gambia: WB Team Leader, Electric Power Privatization and Oil Sector Restructuring, Project.** Led a team representing the Government of Gambia in its negotiations with Eskom to purchase the Gambian electric power and water utility. In addition, advised the Government on restructuring its downstream petroleum operations with special attention to petroleum storage and safety issues.
- **Guyana: Technical Advisor, IDB, Restructuring of the Energy Sector.** Advised the office of the Prime Minister on an institutional strengthening and rationalization program for a number of organizations with conflicting regulatory responsibilities for the energy sector.
- **Indonesia: WB Technical Advisor, Petroleum Sector Restructuring.** Served as part of a three person team drafting a new petroleum policy and oil and natural gas law for the country.

Executive Vice President, International Resources Group, Washington, DC (1988-1999)

Rapidly helped move IRG into the forefront of the privatization of the global utility industry in Pakistan, India, Egypt, Jordan, China, Zambia, Nepal, Mongolia, Bangladesh, and Vietnam. Select projects included:

- **India: Advisor, Regulatory Restructuring Programs, 1996-1998.** Advised the Central Energy Regulatory Commission in India on becoming a fully functioning regulatory institution. Also advised the State Electricity Board in Punjab on restructuring its operations and the State Government of Uttar Pradesh on creating an independent electricity regulatory commission.

- **Nepal: Advisor, His Majesty's Government of Nepal, 1998.** Advised the Nepalese Government on institutional issues relating to the development of private power hydel projects in the country.
- **Mongolia: Team Leader, Power Sector Regulatory Restructuring Program, 1998.** Served as an advisor to the Government of Mongolia on restructuring the power sector in Mongolia and creating an independent regulatory commission.
- **India: WB Team Leader, Bihar Power Sector Restructuring Program, India.** Directed a fifteen person team advising the State Government of Bihar and the Bihar State Electricity Board on restructuring the State Electricity Board to make it run as a commercial enterprise based on market principles.
- **Pakistan: Member of WB Natural Gas Sector Mission to Pakistan (1997)** examining gas pricing issues/ institutional organization of the sector and the relative economics of natural gas imports from Turkmenistan, Iran and Qatar.
- **China: WB Team Leader, Power Sector Restructuring and Tariff Reform Project.** Assisted the Shanghai Municipal Electric Power Company (SMEPC) on the restructuring of its power system and the divestiture of its corporate assets; advised SMEPC on restructuring its relationships with the East China Power Group and other entities serving the Shanghai power system.
- **Bangladesh: WB Advisor, Development of Policy Framework for Private Power Generation.** Advised the government of Bangladesh on establishing an independent power policy and to establish the Private Power Cell as the lead Government agency to evaluate IPP proposals submitted to the Government. Dr. Ebinger helped draft the “security package” for the country’s first IPP project which will be put out for competitive bid in 1997.
- **Egypt: Team Leader, Institutional Development of the Egyptian Electricity Authority, 1996-1998.** Managed the USAID-funded effort in Egypt to restructure the power sector and strengthen the national electricity authority. Drafted a revised charter for the Egyptian Electricity Authority (EEA), worked to establish an independent regulatory regime for the power sector, and participated in drafting a new business plan for EEA.
- **Guyana: Power Restructuring Specialist, Guyana Electricity Company, 1995.** Participated in the institutional review of the Guyana Electricity Company in order to recommend appropriate reforms for its corporatization.
- **Jordan: WB Team Leader, World Bank, Institutional and Financial Restructuring of the Energy Sector, 1994-1995.** Directed a team of fifteen professionals advising the Government of Jordan on: reorganizing and institutionally strengthening the Ministry of Energy and Natural Resources, “corporatizing” the Jordan Electricity Authority, reorganizing the electricity distribution sector, reforming wholesale and retail electricity tariffs; establishing a National Regulatory Authority, putting the energy sector on a sound financial basis, and restructuring the Natural Resources Authority.
- **Pakistan: USAID Team Leader, Pakistan Private Sector Power Project, 1990-1994.** Managed a four-year, \$15 million project and led team composed of IRG and four subcontractors. Coordinated technical assistance efforts with counterparts in various ministries in the Government of Pakistan, as well as officials of donor agencies. Total

level of effort in this project included 48 months each for 4 long-term resident advisors, as well as 200+ months of short-term technical assistance.

- **Pakistan: Team Leader, National Electric Power Regulatory Authority (NEPRA), 1994.** Led the team which designed the structure and functions of the proposed National Electric Power Regulatory Authority (NEPRA). NEPRA's responsibilities will be to: maintain competition; control monopoly activities; authorize the utilization of land and water resources for private power production; and regulate the prices charged by government-owned hydel companies.
- **Pakistan: Member of WB Team (1995)** examining WAPDA's Tariff structure and making recommendations for reform.
- **Pakistan: WB Team Leader** of a natural gas pricing study for the Sui Northern Natural Gas Pipeline Company (1996).
- **Pakistan: Member of ADB Team (1996)** advising the Sui Southern Gas Company on reforming its gas pricing policies; project also was engaged by the Ministry of Petroleum and Natural Resources on creating a Gas Regulatory Authority (GRA).
- **Kyrgyzstan/Kazakhstan, (1991-1992) USAID Team Leader** of two projects conducting demonstrations of energy efficiency equipment in the district heating plants in Almaty and Bishkek. Following these pilot projects, seminars were held bringing together officials from district heating companies throughout both countries to show the benefits of no cost/low cost energy options.
- **Poland/Bulgaria, (1989-1990) USAID Team Leader** of energy efficiency demonstrations of the opportunities afforded by low cost/no cost options in a variety of commercial and industrial facilities.
- **Indonesia: Member of WB Team** examining the impact that fuel subsidies were having on the Indonesian macro-economy and making recommendations for reform.
- **Morocco:, 1988 Member of USAID Team** examining (1) reform of the petroleum product pricing system; (2) the opportunities to reduce fuel wood consumption in the household sector by the introduction of LPG and (3) opportunities for utilizing solar power in commercial buildings in southern Morocco.

Senior Consultant, Putnam Hayes & Bartlett (1987-1988)

Helped to develop a client base with both the London Electricity Board and the Electricity Council that led PHB to become one of the major players in the privatization of the UK's electricity and natural gas markets. Deeply involved in PURPA, FERC and PUCHA reform issues in the United States.

Director, Energy and Strategic Resources Program, Center for Strategic and International Studies (CSIS), Washington, DC (1979-1987)

Directed a major public policy report, *The Critical Link: Energy and National Security*, in the 1980s involving numerous domestic and international oil, gas and electric utility companies. This report was the subject of an article in *Forbes* and led to briefings before NATO, the IEA and the British, French, Belgian and Japanese governments. Conducted major public policy reports on a variety of energy issues. Testified frequently before Congressional, state and

administrative agencies. Conducted two major reports for the Domestic Refiners Coalition, which were the subject of congressional hearings on the national security issues raised by rising imports of petroleum products.

Served as the US Director of another major public policy study, done in association with Chatham House and the Japan Institute of International Economics – *Energy Access to 2000* (Gower Press) – examining the critical energy challenges confronting the OECD nations in the decades ahead. Dr. Ebinger turned CSIS into a major forum for policy debate on energy issues and won support from the energy industry for being fair and objective to all parties on politically charged energy issues.

Vice President, Strategic Planning, Economic Forecasting and Political Risk Assessment, Conant and Associates Ltd. (1976-1979)

Co-founded Conant and Associates. During the next sixteen years it became one of the premier oil and energy consulting companies with clients principally in the European and Japanese energy industries.

Foreign Affairs Officer, Office of International Energy Affairs, Federal Energy Administration (1975-1976)

Involved at staff level in the establishment of the International Energy Agency representing the United States in many of the international energy fora arising from Algeria's call for A New International Economic Order. Served as Desk Officer for the Caribbean and Latin America where he became an expert on the international residual fuel oil market. Became the Far Eastern Desk Officer and was awarded an Agency Certificate for Superior Service for a pioneering study on the emerging Geopolitics of Chinese Oil.

Adjunct Professor, Georgetown University School of Foreign Service (1979-2011)

Served as an adjunct professor in the School of Foreign Service teaching courses that were cross listed in Arab Studies, Economics, law and business schools and the International Business Diplomacy programs. Courses centered on teaching energy and environmental economics, critical policy issues, the world energy market and the Middle East. Many of his former students hold significant energy and foreign policy positions in international investment houses, governments, oil companies, and bilateral and multilateral investment houses. Dr. Ebinger consistently received among the highest student evaluations.

Adjunct Professor, Nitze School of Advanced International Studies, Johns Hopkins University, Washington, DC, (2007-2011)

Teaching a course on global electricity markets and policies focusing on electricity sector reform around the globe; the development of regulatory regimes in formerly state-owned energy sectors; heavy versus light handed regulation; changing views of utility regulation; the development, operation and oversight of power pools; electricity and climate change; electricity pricing.